



September 19, 2013

Via Electronic Filing

Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Re: *Written ex parte presentation, GN Docket 12-268; WT Docket 12-269*

Dear Ms. Dortch:

Mobile Future submitted to the Commission the attached paper, “The Case for Inclusive Spectrum Auction Rules: How Failed International Experiments with Auction Bidding Restrictions Reveal the Strength of Inclusive Rules that Put Consumers and Innovation First,” by an *ex parte* letter dated September 12, 2013. Following that submission, Mobile Future discovered a limited number of typographical errors in the filing. Mobile Future is now respectfully submitting a corrected version of the paper for the Commission’s records. The paper studies previous international spectrum auctions and identifies negative outcomes – for consumers, innovation and public revenue – of auctions designed with bidding restrictions.

The evidence demonstrates that restrictions reduce auction revenue and undermine the interests of consumers and innovators by delaying the deployment of spectrum. Evidence from international spectrum auctions also affirms conclusively that low-frequency spectrum is not necessary for effective competition, so there is no rational basis for discriminating against operators holding such spectrum. The paper concludes that the bidding caps some parties have proposed for the upcoming 600 MHz auction in the United States would be far more restrictive – and more detrimental – than those imposed in the international spectrum auctions that were analyzed.

International auctions with bidding restrictions have been unsuccessful in numerous other countries by failing to meet projected revenue goals or to alter the competitive landscape long-term, ultimately harming the consumer experience. Examples the paper reviews include:

- When the Netherlands auctioned 2.5 GHz spectrum in 2010, it capped the amount of spectrum certain incumbents could acquire. That auction concluded with only 130 MHz of the available 190 MHz being sold and disappointing auction revenues, which the consulting firm who designed the auction concluded were dampened by the bidding caps. Remarkably, a month later the regulator in Denmark (a country with a smaller population than the Netherlands) declined to impose bidding restrictions in its 2.6 GHz auction – and that unrestricted auction generated *fifty times* more revenue than the restricted Dutch auction.
- The 2013 multi-band auction in the United Kingdom, which imposed spectrum caps and other bidding restrictions, generated revenues so far below those forecast by the UK's Office of Budget Responsibility that the government investigated the auction process.
- The 2010 multi-band auction in Germany garnered revenues well below analysts' expectations after the regulator imposed spectrum caps.
- In 2012, the Netherlands multiband auction failed to receive a single bid from a small operator for a 900 MHz license after the three incumbents were barred from bidding on the license, even though small operators did participate in other parts of the auction for unsubsidized higher-band spectrum.
- The Canadian AWS auction in 2008 set aside approximately 44% of that spectrum for non-incumbent bidders – that spectrum sold at a 30% discount compared to the spectrum on which incumbents were permitted to bid.
- When Mexico auctioned its AWS spectrum in 2010 there was a set aside that limited bidding on a nationwide 30 MHz license, and all bidders were restricted in the amount of total spectrum they could win. These constraints resulted in one smaller incumbent acquiring the 30 MHz license at the very low reserve price, no new entry, and one 30 MHz nationwide block remaining unsold.
- Spectrum auctions in Denmark, Sweden, India, and Australia between 2010 and 2013, which imposed spectrum caps or limits on incumbents' bidding, all resulted in low bidder turn-out, spectrum being acquired at or near low reserve prices and well beneath projected prices, and spectrum remaining unsold.

Many of these international regulators imposed such auction restrictions with the intent of shaping a market that more closely resembles the healthier competitive environment in the United States. However, these restrictive and non-inclusive auctions not only failed to achieve this goal, but also resulted in comparatively lower levels of competition and investment, and higher prices for consumers.

The FCC should heed carefully the lessons of these failed international auctions and maintain an inclusive and non-restrictive approach to both the design and conduct of the forthcoming 600 MHz auction.

Mobile Future asks the FCC to continue its support of the U.S. wireless industry – one of the least concentrated wireless markets in the world – by maintaining the successful policy of administering inclusive auctions that allow all competitors to participate equally. Wireless

competition will continue to thrive through secondary market transactions and the current spectrum screen that the Commission has used successfully for a decade. Realizing the full benefits of the 600 MHz auction requires active, undeterred participation from all interested parties.

Pursuant to Section 1.1206 of the Commission's rules, a copy of this letter is being filed via ECFS with your office. Please do not hesitate to contact the undersigned with any questions.

Respectfully submitted,

/s/ Jonathan Spalter

Jonathan Spalter, Chair
Mobile Future
1325 Pennsylvania Avenue, N.W., Suite 600
Washington, D.C. 20004
202-756-4154
www.mobilefuture.org

Attachment

cc: Michele Ellison
Dave Grimaldi
Louis Peraertz
David Goldman
Matthew Berry
Courtney Reinhard
Jonathan Chambers
Julius Knapp
Ruth Milkman
Gary Epstein
Sean Lev



THE CASE FOR INCLUSIVE SPECTRUM AUCTION RULES
*How Failed International Experiments with Auction Bidding Restrictions
Reveal the Strength of Inclusive Rules that Put Consumers and Innovation First*

September 2013

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EXECUTIVE SUMMARY

In the *Incentive Auction* and *Spectrum Holdings* proceedings, some parties are asking the Federal Communications Commission (FCC) to limit the amount of spectrum bidders can acquire during the upcoming 600 MHz auction, for example, by capping the amount of low-frequency wireless spectrum any operator may hold (“auction restrictions”). Some argue that auction restrictions are advisable in the United States because some international regulators have experimented with them. But analyses of these experiments conclude, and auction theory indicates, that restricting the participation of bidders will lead to poor outcomes for consumers as well as reductions in innovation and in much-needed public revenues. Empirical evidence from international spectrum auctions validates that prediction and also shows that there is no policy rationale for regulating low-frequency spectrum differently than higher-frequency spectrum.

Revenue. The auction restrictions employed by foreign regulators have been *much* less restrictive than those being proposed for the upcoming Incentive Auction by certain parties in the United States. This fact by itself calls into question the reasonableness and advisability of the U.S. proposals. Yet even foreign auctions with restrictions that are comparatively less onerous often have disappointing results, which are frequently followed by public inquiries into what went wrong and/or findings by analysts that firms not subject to restrictions received substantial government subsidies in the form of artificially low prices. The restrictions now being proposed in the United States are even more discriminatory and would put at risk the revenue objectives of the upcoming Incentive Auction. This in turn would imperil Congress’ objective of funding the nationwide first responder broadband network promised to the American people for a decade, and it would substantially heighten the risk of outright auction failure.

Low-Frequency Spectrum. International evidence confirms that there is no basis for regulatory policies that discriminate against operators holding low-frequency spectrum. Various foreign operators have made business decisions – just like many operators in the U.S. – to compete using higher-frequency spectrum and to forego opportunities to acquire low-frequency spectrum. The United Kingdom (UK) regulator has confirmed that such decisions are rational, finding that it is not necessary for a wireless operator to have low-frequency spectrum in order to compete effectively.

Consumer Welfare. Most countries' attempts to modify industry structure via auction restrictions are intended to make foreign wireless markets more closely resemble the U.S. market, which is characterized by less concentration, higher levels of investment and innovation, lower prices and higher quality. These efforts to replicate the U.S. market overlook one of its key lessons: Every significant new entry into the wireless sector since the mid-1990s has arrived via the proving ground of a market-based transaction – a vital test of sustainability in such a capital-intensive industry. Given this disconnect, foreign regulators who pursue restrictive bidding rules have not seen their public-spirited objectives realized. To the contrary, auction restrictions imposed by foreign regulators are associated with poor outcomes for consumers, including lower levels of investment, higher prices and delayed deployment of advanced services. The consistent failure of foreign regulators to improve industry performance via auction restrictions confirms that they are not policy tools the FCC should import. Rather, U.S. spectrum policy should continue to set an example to the world that inclusive, market-oriented auctions are the most efficient path to a consumer wireless experience and mobile innovation economy that is the envy of the world.

I. THE RESTRICTIONS PROPOSED IN THE UNITED STATES ARE FAR MORE RESTRICTIVE THAN THOSE EMPLOYED INTERNATIONALLY.

In the vast majority of foreign auctions with some form of auction restriction, restricted operators were able to acquire reasonably large amounts of spectrum (at least a 10x10 MHz license and often substantially more) throughout the country.¹ By contrast, Mobile Future is not aware of any party proposing an auction restriction in the United States under which companies with the largest number of wireless consumers could purchase similar amounts of spectrum in the upcoming Incentive Auction. For example, under the 1/3 sub-1 GHz spectrum aggregation cap proposed by some parties, Verizon would be barred from acquiring any spectrum in at least 18 of the top 20 markets,² and AT&T would be similarly precluded from bidding in eight of the

¹ See, e.g., Martin Cave & William Webb, *Spectrum Limits and Auction Revenue: the European Experience*, at 9, attached to Ex Parte Letter from Rafi Martina, Sprint, to Marlene Dortch, FCC, GN Docket No. 12-268 and WT Docket No. 12-269 (July 29, 2013) (“Cave/Webb Paper”) (describing the amount of spectrum acquired by each incumbent in various European auctions). In some cases, the amount of spectrum restricted firms could acquire was as much as 25x25 MHz. See, e.g., § II.B.2, *infra*.

² See Ex Parte Letter from Tamara Preiss, Verizon to Marlene Dortch, FCC, GN Docket No. 12-268 and WT Docket No. 12-269 (July 17, 2013). That calculation assumes (conservatively) that the FCC would

top ten markets.³ Although the spectrum aggregation proposal has been modified to include a “safety valve,” in virtually all of the large markets in the United States, Verizon and AT&T would be limited to purchasing a *single* 5x5 MHz license – which is less than 15% of the 600 MHz spectrum that would be auctioned.⁴

Given the less onerous nature of the foreign auction restrictions, the negative outcomes often associated with those auctions obviously understate the risks the FCC would be taking if it imposes the opportunistic restrictions being proposed in this country. Also, the types of restrictions employed internationally, and the reasons regulators employ them, are generally different. For example, as discussed below, the most common policy goal of foreign regulators is to encourage the entry of new competitors, typically in an effort to more closely emulate the market structure that already exists in the United States by promoting entry by a fourth nationwide competitor in those countries. Those policy goals have not been realized; for example, of the six European countries that used preferential auction rules in 2000 and 2001 in an effort to enhance competition, not one has a single additional carrier in the market today. But whatever the merits of those policies in the context of less competitive foreign markets, there already are four competitors that operate nationally in the United States, and no party is proposing that the FCC’s objective should be to subsidize the entry of a fifth nationwide competitor.

II. THERE IS EXTENSIVE EVIDENCE THAT BIDDING RESTRICTIONS ARE ASSOCIATED WITH LOW REVENUE.

In 2012, Congress authorized the FCC to pursue incentive auctions both to free more spectrum to respond to hockey-stick growth in mobile Internet use as well as to raise urgently

count towards the denominator in the spectrum cap some amount (either 50 or 70 MHz) of the to-be-auctioned spectrum. Under a stricter application of the cap based purely on pre-auction holdings, Verizon would be barred from 9 of the top 10 markets. *Id.*

³ See Yeon-Koo Che and Philip A. Haile, *Comments on T-Mobile’s “Dynamic Market Rule” Proposal*, attached to Ex Parte Letter from David Lawson, Sidley Austin to Marlene Dortch, FCC, GN Docket No. 12-268 and WT Docket No. 12-269 (Aug. 13, 2013).

⁴ T-Mobile supports a band plan that would make available 7 paired licenses (5x5 MHz each) in each market, and it supports a safety valve that would allow Verizon and AT&T to each bid on a single license if otherwise excluded under T-Mobile’s proposed spectrum aggregation cap. See Comments of T-Mobile USA, Inc., WT Docket No. 12-268, at 10-11 (June 14, 2013); Ex Parte Letter from Trey Hanbury, Counsel for T-Mobile, to Marlene Dortch, FCC, GN Docket No. 12-269, at 2 (May 30, 2013).

needed public revenues to fund FirstNet, the nationwide interoperable first responder network promised to emergency workers – and all Americans – for more than a decade since the tragedies of 9/11. How these world-leading U.S. incentive auctions are constructed is critical to our domestic economic growth and global wireless leadership and also to the size of the fund required to make FirstNet a reality. Estimates of auction proceeds from the 600 MHz Incentive Auction range from less than \$20 billion to more than \$30 billion depending on the degree to which the government imposes restrictions on participation. From consumer access to innovative services to the public revenues gained at the auction block, the U.S. has much to gain from charting a more inclusive path than its international competitors.

A. The Results of Auctions Cited by Proponents of Restrictions in the United States Actually *Undercut* Their Theories.

In making their case for restrictive rules, opponents of inclusive auctions cite certain international examples. Curiously upon closer examination, however, the specific cases they reference actually undercut their arguments for the public benefits of their position – demonstrating instead the broad consumer, innovation and revenue benefits of allowing full participation in the auction process.

1. UK – Multiband Auction – February 2013

In February 2013, the Office of Communications (Ofcom) in the UK auctioned 250 MHz of mobile spectrum in the 800 MHz and 2.6 GHz bands.⁵ Ofcom imposed bidding restrictions designed to support the entry of a fourth credible national operator (*i.e.*, to promote an industry structure more similar to that of the United States).⁶ Specifically, Ofcom (i) reserved spectrum packages for a fourth national wholesaler, and (ii) imposed two spectrum caps, one below 1 GHz and another for all mobile bands.⁷ A number of proponents of bidding

⁵ See Ofcom, *Assessment of future mobile competition and award of 800 MHz and 2.6 GHz* (July 24, 2012) (“Ofcom Statement”), available at <http://stakeholders.ofcom.org.uk/binaries/consultations/award-800mhz/statement/statement.pdf>.

⁶ *Id.* at 22.

⁷ See, e.g., Stanley M. Besen, Serge X. Moresi, Steven C. Salop, *Why Restricting Participation in Spectrum Auctions Can Increase Bidder Participation, Increase Auction Revenues, and Increase Competition in Wireless Markets*, at 7 (Mar. 12, 2013) (“BMS Report”), attached to Reply Comments of Sprint Nextel Corporation, GN Docket No. 12-268 (Mar. 12, 2013). More details are provided in Section

restrictions in the United States urge the FCC to follow the UK regulator's lead and to pursue similar policies.⁸

Low revenues earned from the UK auction generated significant controversy within the British government. The auction generated only £2.34 billion (USD 3.66 billion), more than 30% below the Office of Budget Responsibility's revenue forecast.⁹ That result prompted an investigation by the National Audit Office into the auction process.¹⁰ Members of Parliament also expressed their dissatisfaction with the revenue earned.¹¹

2. Germany – Multiband Auction – May 2010

Another auction cited by advocates of bidding restrictions is the May 2010 multiband auction where the German regulator, BNetzA, assigned 358.8 MHz of spectrum in the 800 MHz, 1.8 GHz, 2 GHz, and 2.6 GHz bands. BNetzA set an overall cap of 2x20 MHz for spectrum holdings below 1 GHz, which asymmetrically limited the amount of new spectrum that companies already holding such spectrum could acquire.¹²

III below, which explains that Ofcom explicitly found that it was not necessary for a new entrant to acquire low-frequency spectrum in order to be an effective competitor.

⁸ *Id.* at 8; Martyn Roetter & Alan Pearce, *The Impact of Bidding Eligibility Conditions on Spectrum Auction Revenues*, at 18 (Feb. 2013) (“Roetter/Pearce Paper”), attached to Ex Parte Letter from Catherine Sloane, Computer & Communications Industry Association, to Marlene Dortch, FCC, WT Docket No. 12-269 (Feb. 19, 2013).

⁹ BBC, *Ofcom raises £2.34bn in 4G auction, less than forecast* (Feb. 20, 2013), available at <http://www.bbc.co.uk/news/business-21516243>.

¹⁰ BBC, *4G auction to be investigated by National Audit Office* (Apr. 16, 2013), available at <http://www.bbc.co.uk/news/business-22165797>.

¹¹ For example, one member of the British Parliament stated that “serious questions must be answered” about the revenue shortfall. See Charles Arthur, *Watchdog to investigate 4G sell-off: Airwaves auction raised £1.2 bn less than expected: Osborne included full £3.5bn in Treasury forecast*, at 22, *The Guardian*, (Apr. 15, 2013).

¹² BNetzA, *Decisions of the President's Chamber of the Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway of 12 October 2009 on combining the award of spectrum in the bands 790 to 862 MHz, 1710 to 1725 MHz and 1805 to 1820 MHz with proceedings to award spectrum in the bands 1.8 GHz, 2 GHz and 2.6 GHz for wireless access for the provision of telecommunications services, and on the determinations and rules for conduct of the proceedings to award spectrum in the bands 800 MHz, 1.8 GHz, 2 GHz and 2.6 GHz for wireless access for the provision of telecommunications services*, Decisions taken under sections 55(9), 61 subsections (1), (2), (4) and (5), 132 subsections (1) and (3) TKG, at 59 (Oct. 12, 2009) (“German Auction Rules”), available at <http://www.bundesnetzagentur.de/SharedDocs/Downloads/EN/BNetzA/Areas/Telecommunications/TelecomRegulation/FrequencyManagement/ElectronicCommunicationsServices/FrequencyAward2010/Decisio>

In line with other auctions where bidding restrictions were imposed, the German auction raised just short of 4.4 billion Euro (USD 5.5 billion) an amount well below analysts' expectations. For example, KPMG had estimated that the auction would raise between 6-8 billion Euro (USD 7.5-10 billion).¹³ Similarly, JP Morgan Cazenove noted that E-Plus, an incumbent that was not limited by the cap, obtained its spectrum "at a bargain" for less than half the expected price.¹⁴

3. Netherlands – Multiband Auction – 2012

Proponents of bidding restrictions argue that the 2012 Dutch auction supports a finding that restrictions might not result in reduced revenue. For example, Sprint's economists assert that the decision by the Dutch regulator to set aside two sub-1 GHz licenses for "newcomers" in that auction did not reduce revenues because it created a "squeeze" on incumbents that purportedly "drove up prices."¹⁵ That is misleading for several reasons. First, it ignores the most obvious reason why the restrictions may not have substantially suppressed auction revenue: the regulator required incumbent providers to compete to reacquire usage rights for spectrum they were already using. The incumbents were providing service to their customers with the 900 MHz and 1800 MHz licenses prior to the auction, but those licenses would expire in early 2013 if they did not reacquire usage rights.¹⁶ The incumbent licensees were therefore under substantial pressure to bid aggressively to prevent service disruptions to their customers and to

nPresidentChamber101022.pdf;jsessionid=7553B2C9AB09D6F19B5BCD83E679E7F7?_blob=publicationFile&v=2.

¹³ Dow Jones Newswires, *German Spectrum Auction Gains To Total EUR6 Billion-EUR8 Billion-KPMG* (April 20, 2010), available at <http://m.foxbusiness.com/quickPage.html?page=19453&content=-37250749&pageNum=-1>.

¹⁴ See JP Morgan Cazenove, Europe Equity Research – Wireless Services (May 20, 2010), cited by Ofcom Statement, Annex 2, ¶ A2.226, available at <http://stakeholders.ofcom.org.uk/binaries/consultations/award-800mhz/statement/Annexes1-6.pdf>. That subsidy alone cost the German treasury well over a half billion dollars. *Id.*

¹⁵ See BMS Report at 6-7 (internal quotations omitted).

¹⁶ See Ministry of Economic Affairs, Agriculture and Innovation, *Regulation of the Dutch Ministry of Economic Affairs, Agriculture and Innovation dated January 6th, 2012, no. WJZ/10146523, to establish the application and auction procedure for licenses for the frequency spectrum in the 800, 900 and 1800 MHz bands for mobile communication applications* (Jan. 6, 2012) ("Dutch Auction Rules"), available at <http://www.agentschaptelecom.nl/sites/default/files/courtesy-translation-auction-rules.pdf>.

avoid stranding billions of dollars of investment. Sprint's economists fail to control for (or even acknowledge) this critical factor – a failure that constitutes a major defect in their analysis.

Moreover, the evidence from the 2012 Dutch auction undercuts the assertion that bidding restrictions will increase revenue by encouraging more robust bidding by smaller operators that may otherwise be discouraged if required to compete for spectrum against larger bidders. Given that the three incumbents were barred from bidding on one of the 900 MHz band licenses, a small operator *could have* acquired it at a very low price – but no bid was received. So not only was there not “more robust bidding,” but there was no bidding at all by non-incumbents. Notably, one existing small operator, ZUM, declined to acquire that 900 MHz license even though it possessed only high-band spectrum. ZUM *did* however actively participate in the auction and did compete successfully against the larger operators to acquire additional *high-band* spectrum, even though it did not enjoy any preferential treatment with respect to that spectrum. ZUM's decision to compete against larger incumbent bidders for the unsubsidized (*i.e.*, non-set aside) high-frequency spectrum suggests that it was able to achieve its objectives in the auction despite the presence of larger bidders.

4. Canada – AWS Auction – 2008

Proponents of auction restrictions in this auction explicitly cited the U.S. market as the model the Canadian regulator should attempt to emulate. Once again, there was a failure to recognize the fundamental market orientation of U.S. wireless policy. For instance, Quebecor Media expressed an interest in participating in an auction in which it would get special preferences, emphasizing that the United States has four nationwide carriers (as opposed to Canada's three) and also that regional competition (which was nonexistent in Canada) means that the average American city is served by five or more mobile carriers.¹⁷ Quebecor Media also noted that prices in Canada were “much higher” than in the United States and argued that the situation “should not be tolerated.”¹⁸

¹⁷ Reply Comments of Quebecor Media To Industry Canada as Part of the Consultation, Canada Gazette Notice DGTP-002-07, *Consultation on a Framework to Auction Spectrum in the 2 GHz Range Including Advanced Wireless Services*, at 31 (June 27, 2007), available at [http://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/dgtp-002-07-rep-Quebecor-M%C3%A9dia-Final-e.pdf/\\$FILE/dgtp-002-07-rep-Quebecor-M%C3%A9dia-Final-e.pdf](http://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/dgtp-002-07-rep-Quebecor-M%C3%A9dia-Final-e.pdf/$FILE/dgtp-002-07-rep-Quebecor-M%C3%A9dia-Final-e.pdf).

¹⁸ *Id.* at 35-39.

The policy tool employed by the Canadian regulator to pursue its objectives differed from the tools proposed by parties in this country who urge the FCC to pursue different objectives. To support the entry of a fourth competitor into the Canadian market the Canadian regulator set aside licenses representing approximately 44% of the to-be-auctioned spectrum for companies other than the three incumbents, while permitting all interested parties to bid for the majority (56%) of the spectrum.¹⁹ That set-aside spectrum sold at a 30% discount compared to the non-restricted spectrum on which the incumbents were permitted to bid.²⁰

5. Mexico – AWS Auction – 2010

A large portion of the Roetter/Pearce Paper is devoted to arguing that the Mexican experience in 2010 supports proposals to impose auction restrictions in the United States.²¹ Like the Canadian industry, the Mexican wireless industry is very different from that of the United States. One operator, América Móvil, with a retail market share of approximately 70%, has been deemed by the country's antitrust authority to be the "dominant" provider of wireless telecommunications services.²² Only one other operator, Telefónica, has a double-digit market share. Against that unique backdrop, the regulator imposed auction restrictions that included a limit on the amount that any bidder could acquire. It also established a nationwide 30 MHz license that was set aside in a way that permitted only one of the small existing operators, Nextel, to acquire that license.

Those auction rules have been the subject of substantial controversy. Nextel acquired its nationwide license at auction at the very low reserve price of 180 million Mexican pesos (less than USD 15 million), which represented a MHz-per-pop price of only \$0.0005 USD.²³ No new entry occurred as a result of the auction, and one 30 MHz nationwide block of spectrum went

¹⁹ See Robert Earle and David W. Sosa, *Spectrum Auctions Around the World: An Assessment of International Experiences with Auction Restrictions*, at 18 (July 2013) ("Earle/Sosa Paper"), available at <http://mobilefuture.org/wp-content/uploads/2013/07/Spectrum-Auctions-Around-The-World.pdf>.

²⁰ *Id.* at 18-19.

²¹ Roetter/Pearce Paper at 4-7.

²² See Crayton Harrison, *America Movil 2010 Mexico Dominance Ruling Upheld by Agency*, Bloomberg (Apr. 5, 2013), available at <http://www.bloomberg.com/news/2013-04-04/america-movil-2010-dominance-ruling-upheld-by-antitrust-agency.html>.

²³ See Ramiro Tovar Landa, *Spectrum Auction Tragedies: The case of the Mexico spectrum auction for AWS services*, at 5 (Aug. 30, 2010) ("Tovar Landa Paper"), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1667950.

unsold and still has not been put to use to help meet the needs of the country's wireless consumers.²⁴ One of the other small competitors, Iusacell, challenged the legality of the set-aside favoring Nextel, and the resulting legal proceeding delayed the ability to put that subsidized spectrum to use.²⁵ The restrictions have been found to have negatively affected consumers and suppressed auction revenue.²⁶

B. Auction Restrictions in Other Countries Are Also Associated with Low Revenues.

Looking beyond the auctions that proponents of auction restrictions cite, other auctions similarly drive home the fact that imposing restrictions risks substantial delays in delivering advance services to mobile consumers and innovators, while suppressing government revenues.

1. Netherlands – 2.5 GHz auction – 2010

Bidding restrictions imposed by the Dutch regulator on the country's three incumbent operators during this auction are widely considered to have suppressed bidding and to have led to low auction revenues.²⁷ With the goal of subsidizing new entry into the Dutch market, the regulator capped the amount of spectrum that incumbents KPN, T-Mobile and Vodafone could acquire, imposing an overall mobile spectrum cap that took into account holdings in the 900 MHz, 1800 MHz and 1.9 GHz/2.1 GHz bands.²⁸ The cap imposed different restrictions on each

²⁴ *Id.* at 2.

²⁵ See Roberta Prescott, *Nextel, Iusacell Agree to withdraw lawsuits over spectrum auction*, RCR Wireless (Dec. 8, 2011), available at <http://www.rcrwireless.com/americas/20111208/carriers/nextel-iusacell-agree-to-withdraw-lawsuits-over-spectrum-auction/>.

²⁶ See Tovar Landa Paper.

²⁷ See, e.g., Michael Newlands, *Spectrum caps blamed for unsatisfactory outcome of Dutch auction*, PolicyTracker, (Apr. 29, 2010), available at <http://www.policytracker.com/free-content/blogs/-policytracker-may-update-auctions-special-report>; Richard Marsden, Eimear Sexton, and Arisa Siong, *Fixed or flexible? A survey of 2.6GHz spectrum awards*, at 27 dot.econ (June 2010) (“dot.econ Report”), available at <http://www.dotecon.com/assets/images/dp1001.pdf>; Analysys Mason, *Dutch 2.6 GHz Auction Raises Just EUR2.6 Million*, (May 4, 2010), available at http://www.analysysmason.com/About-Us/News/Newsletter/Dutch-26GHz-auction-raises-just-EUR26m/#.UgFXIG3_ivM.

²⁸ Staatscourant (Netherlands), *Regeling van e Staatssecretaris van Economische Zaken van 18 oktober 2009, nr. WJZ/9155615, tot vaststelling van de aanvraag- en veilingprocedure voor vergunningen voor frequentieruimte in de 2,6 GHz-band ten behoeve van mobiele communicatie-toepassingen (Regeling aanvraag- en veilingprocedure vergunningen 2,6 GHz)*, Article 17 (Oct. 26, 2009), available at

of the three large providers, but none of the three was permitted to acquire more than 20 MHz of spectrum, which was half of the amount new entrants were permitted to acquire.²⁹

The result was that only 130 MHz of the available 190 MHz of spectrum was sold, and new entrants only obtained 80 MHz of the 135 MHz set aside for them. The entire auction – 130 MHz of spectrum – raised only EUR 2.6 million (USD 3.5 million) for the Dutch treasury.³⁰ The consulting firm that designed the auction and produced the software to run it concluded that “[w]ith five bidders, demand for paired spectrum *could have* been strong” but that “because the spectrum caps on the incumbents were set very tightly, there still was not enough demand to increase prices above reserve.”³¹

A month after the Dutch auction, the regulator in Denmark auctioned the 2.6 GHz band without imposing caps on any bidders.³² Remarkably, that unrestricted Danish auction raised 50 times more revenue than the Dutch auction – despite the fact that Denmark has roughly one third of the Netherlands’ population.³³

2. Australia – 700 MHz and 2.5 GHz – May 2013

After initially imposing a 2x20 MHz spectrum cap for the 700 MHz spectrum, the Australian government raised the cap to 2x25 MHz to avoid unsold spectrum remaining at the conclusion of the auction.³⁴ In the 2.5 GHz band, the government imposed a 2x40 MHz spectrum cap.³⁵

http://www.agentschaptelecom.nl/sites/default/files/regeling_aanvraag_en_veilingprocedure_vergunninge_n_26_ghz.pdf.

²⁹ Michael Newlands, *Dutch 2.6 GHz auction attracts nine entrants*, PolicyTracker, (Mar. 18, 2010), available at <http://www.policytracker.com/free-content/blogs/the-policytracker-monthly-update-for-april>.

³⁰ Agentschap Telecom, *Uitkomsten 2,6 GHz veiling*, available at <http://www.agentschaptelecom.nl/onderwerpen/mobiele-communicatie/uitkomsten-26-ghz-veiling>.

³¹ See dot.econ Report at 27 (emphasis added).

³² See Michael Newlands, *Danish 2.6 GHz auction raises 50 times more than Dutch auction*, PolicyTracker (May 26, 2010), available at <http://www.policytracker.com/freecontent/blogs/-June-2010-monthly-update>. As discussed below, an earlier Danish auction where restrictions were imposed had resulted in disappointing revenue.

³³ *Id.*

³⁴ ACMA, *Auction Guide (Revised Version)*, at 52 and Attachment M (Mar. 20, 2013), available at http://engage.acma.gov.au/digitaldividend/wp-content/uploads/2013/03/AIP_Final_March-2013.pdf.

³⁵ *Id.* at 52.

Even with the higher caps (much higher than those being proposed in the United States), the revenue results of the auction were disappointing. The incumbent Telstra obtained 2x20 MHz of the available 700 MHz spectrum and incumbent Optus obtained 2x10 MHz. The remaining 2x15 MHz – with a reserve price of AUD 933 million (USD 928 million) – was not sold. The auction lasted only a single round, with each bidder paying only the reserve price. In the 2.5 GHz band, Telstra obtained 2x40 MHz of the available spectrum, Optus obtained 2x20 MHz, and TPG Internet obtained 2x10 MHz. Although the 2.5 GHz portion of the auction lasted three rounds, final prices were “only marginally above reserve prices,” according to the Australian Communications and Media Authority.³⁶ Australian legislators have considered a possible inquiry into the disappointing auction results.³⁷

3. Denmark – 900 MHz and 1800 MHz – October 2010

Existing 900 MHz and 1800 MHz licensees TDC, Telenor and Telia were barred from bidding for either of the two auctioned licenses.³⁸ The result was that Hi3G Denmark (“3”), an existing 1.9 GHz/2.1 GHz licensee, was the only bidder for either of the licenses. No new entrant showed up. As such, Hi3G Denmark won the licenses at the reserve prices.³⁹ The total auction proceeds (for both a nationwide 2x5 MHz license and a nationwide 2x10 MHz license) were only DKK 12 million (USD 2.24 million).⁴⁰

4. India – 1800 MHz and 800 MHz – November 2012

Under the rules imposed by the Indian regulator, each existing licensee was limited to bidding for two of the eight available 2x1.25 MHz blocks of 1800 MHz spectrum in each service

³⁶ ACMA, *Digital dividend auction — results*, (July 5, 2013), available at <http://engage.acma.gov.au/digitaldividend/digital-dividend-auction-results>.

³⁷ John McDuling and Joanna Heath, *Conroy's spectrum auction falls short*, Financial Review (May 7, 2013), available at http://www.afr.com/p/technology/conroy_spectrum_auction_falls_short-z7wIxTLHkS0LoZ8jAdt8kL.

³⁸ GSMA, *900 MHz and 1800 MHz band refarming case study: Denmark*, at 24 (Nov. 24, 2011), available at <http://www.gsma.com/spectrum/wpcontent/uploads/2012/07/refarmingcasestudy-denmark20111124.pdf>.

³⁹ *Id.*

⁴⁰ *Id.*

area.⁴¹ Each existing licensee also was limited to bidding for one of the three 2x1.25 MHz blocks of 800 MHz spectrum in each service area.⁴² Also, new entrants bidding on 1800 MHz spectrum were required to bid for a minimum of four blocks in each service area.⁴³

Only five entities participated, with a total of 102 blocks sold for a total of INR 94.07 billion (USD 1.71 billion).⁴⁴ That was less than a quarter of the Indian government's target of INR 400 billion (USD 7.3 billion). There were no bids for the 800 MHz spectrum, nor any bids for the 1800 MHz spectrum in the important Delhi, Karnataka, Mumbai and Rajasthan service areas. India's Telecommunications Secretary stated in an interview that only 42% of the available spectrum was sold.⁴⁵

The remaining 1800 MHz spectrum was made available at a subsequent auction in March 2013 (along with 900 MHz and 800 MHz spectrum), with lower reserve prices. However, no bidders registered to participate in the 900 MHz and 1800 MHz auctions.⁴⁶ Sistema Shyam TeleServices, the only bidder to show up for the auction, won the 800 MHz spectrum at the reserve price. Licenses in Mumbai, Maharashtra and UP East remain unassigned.

5. Sweden – 800 MHz – 2011

The regulator made available six licenses of 2x5 MHz each in the 800 MHz band, with a reserve price of SEK 150 million (USD23 million) each. It imposed restrictions in the form of a spectrum cap of 2x10 MHz for the assignment of the 800 MHz band.⁴⁷ A bidder, therefore,

⁴¹ Department of Telecommunications, *Auction of Spectrum in 1800MHz and 800MHz Bands*, Notice Inviting Applications, at 12 (Sept. 28, 2012), available at <http://www.dot.gov.in/sites/default/files/18.pdf>.

⁴² *Id.*

⁴³ *Id.*

⁴⁴ Department of Telecommunications, *1800 MHz Spectrum Auction: Public Report End of Day 14-11-2012*, (Nov. 14, 2012), available at <http://www.dot.gov.in/sites/default/files/34.pdf>.

⁴⁵ Joji Thomas Philip and Gulveen Aulakh, *2G auctions flop as 57% of spectrum remains unsold; govt gets less than a quarter of its revenue target*, The Economic Times (Nov. 15, 2012), available at http://articles.economictimes.indiatimes.com/2012-11-15/news/35111763_1_airwaves-auctions-reserve-price-base-price.

⁴⁶ See Department of Telecommunications, *Auction of Spectrum in 1800MHz, 900MHz and 800MHz bands*, List of Applicants (Feb. 25, 2013), available at http://www.dot.gov.in/sites/default/files/25-2-13_0.pdf.

⁴⁷ PTS, *Open invitation to apply for a licence to use radio transmitters in the 800 MHz band*, at 29 (Dec. 13, 2010), available at <http://www.pts.se/upload/Beslut/Radio/2010/10-10534-open-invitation-800-mhz-auction-dec10.pdf>.

could not be assigned more than two licenses of 2x5 MHz through the auction. The result was that Hi3G Access obtained 2x10 MHz for SEK 431 million (USD 66.5 million); Net4Mobility obtained 2x10 MHz for SEK 469 million (USD 72.3 million) plus a commitment of SEK 300 million (USD 46.3 million) for covering homes and businesses in remote areas of the country; and TeliaSonera Mobile obtained 2x10 MHz for a base price of SEK 854 million (USD 131.7 million).⁴⁸ Those final prices were close to the reserve prices and revenue was described as “lukewarm.”⁴⁹

C. Comparative Revenue Analysis Offered by Those Seeking Preferential Treatment Is Fundamentally Flawed.

The Cave/Webb Paper filed on behalf of Sprint purports to describe the “European Experience” with auction restrictions.⁵⁰ The authors compare the spectrum prices in six auctions where incumbents were subject to auction restrictions (Denmark, Germany, Italy, Portugal, Sweden, and Spain) with one supposedly “unrestricted” auction (France).⁵¹ But the authors inappropriately use a *single* auction in a *single* country (the December 2011 800 MHz auction in France) as the baseline for the revenue that supposedly should be expected in an auction with no restrictions. It is impossible to rely on data from a single auction in a single country to reach a statistically valid conclusion, and it is particularly inappropriate to use France as representing an “unrestricted” auction given that the French regulator *did* in fact impose auction restrictions.

In fact, the authors explicitly cite the French auction restrictions for their point that such limits are “widespread.”⁵² The authors speculate that the restrictions did not affect bidder behavior in the French auction because the restricted companies purchased less than the full cap amount – and based on that speculation they classify the auction as “unrestricted” for purposes of their comparative analysis.⁵³ Conversely, they speculate that the restrictions did have an effect in

⁴⁸ PTS, *Results from the Swedish 800 MHz auction* (Mar. 4, 2011), available at <http://www.pts.se/upload/Ovrigt/Radio/Auktioner/10-10534-results-800mhz.pdf>.

⁴⁹ See Philip Marshall, *Sweden’s 800 MHz spectrum auction sees lukewarm response as service providers accelerate their efforts towards 4G*, 4G Trends (Mar. 8 2011), available at <http://www.4gtrends.com/articles/26961/swedens-800-mhz-spectrum-auction-sees-lukewarm-res/>.

⁵⁰ See Cave/Webb Paper.

⁵¹ *Id.* at 18-23.

⁵² *Id.* at 9.

⁵³ *Id.* at 20.

the other six countries because the companies purchased the full amount possible under the caps, and therefore classify those auctions as “restricted.”⁵⁴ The authors admit that “[n]either of these judgments is straightforward,”⁵⁵ which is an understatement.⁵⁶

III. INTERNATIONAL EVIDENCE CONFIRMS THAT LOW-FREQUENCY SPECTRUM IS NOT A COMPETITIVE NECESSITY.

In the U.S., certain competitive wireless carriers assert that they need preferential rules that guarantee them access to spectrum in the upcoming 600 MHz auction because they purportedly need such low-frequency spectrum to be able to compete with larger market rivals. This argument fails for many reasons: It impedes the ability of key companies to pursue adequate spectrum to serve millions of U.S. consumers; and the actions of those companies seeking preferential treatment patently undercuts their assertions that low-frequency spectrum is a necessity in order for them to compete. Both T-Mobile and Sprint have pursued business plans focused almost exclusively on assembling higher-frequency spectrum portfolios. For example, neither Sprint nor T-Mobile participated in the 700 MHz auction in the United States (even though more than 100 firms actively participated), and each has consistently declined to acquire low-frequency spectrum on the secondary market despite hundreds of opportunities to do so.⁵⁷

The international evidence confirms that there is no basis for regulators to presume that all operators need low-frequency spectrum in order to compete effectively. Indeed, Roetter and Pearce have it backwards when they assert (without support) that “while both low and high frequencies are valuable, they are also both essential, and non-substitutable for each other.”⁵⁸ The evidence in fact confirms that the choices companies have made in the United States to

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ Even if it the methodology were statistically sound and even if were reasonable to conclude that prices in all seven auctions were “broadly the same” (*id.* at 21), a relatively weak revenue effect in the auctions analyzed could be due to the fact that the restrictions in those auctions were not particularly strong. The authors do not even attempt to explain how the European restrictions they analyze are relevant to the likely revenue effects of the much more onerous restrictions proposed by some in the United States.

⁵⁷ See, e.g., Reply Comments of Verizon and Verizon Wireless, Docket No. 12-268, at 22 (filed Mar. 12, 2013) (collecting historical facts).

⁵⁸ Roetter/Pearce Paper at 21.

forego opportunities to acquire low-frequency spectrum should not be dismissed as simply bad decision-making by executives unaware that such spectrum is “essential.”

First, U.S. carriers are not alone in competing using high-frequency spectrum. In Europe, for example, nationwide operators in Germany, Italy, Spain and France have all competed with little or no holdings of sub-1 GHz spectrum.⁵⁹ One of Italy’s national wireless operators, 3 Italia, passed up an opportunity to acquire sub-1 GHz spectrum in Italy’s 800 MHz auction because it preferred the economics associated with providing comparable service using its higher-frequency spectrum. Although 3 Italia determined that it could have deployed 800 MHz spectrum using fewer base stations, the trade-off between spectrum costs and capital deployment costs supported building out its network using 1800 MHz and 2.6 GHz spectrum: 3 Italia calculated its deployment costs using the higher-frequency spectrum at EUR 250-300 million, substantially lower than the over EUR 1 billion that each of its competitors paid for their 800 MHz spectrum.⁶⁰ In sum, the *actions* of international wireless operators undercut the assertions in this country that holding sub-1 GHz spectrum is a competitive necessity.

Foreign regulatory findings drive home that fact. The UK regulator has expressly found that the evidence does not support theories that a wireless operator needs low-frequency spectrum in order to compete. Ofcom indicated that operators may pay more for low-frequency spectrum because of “lower network costs, *rather* than because there are necessarily large differences in the value of services provided to consumers.”⁶¹ Ofcom therefore concluded that

⁵⁹ See Ofcom, *Second consultation on assessment of future mobile competition and proposals for the award of 800 MHz and 2.6 GHz spectrum and related issues*, Annex 6: Revised Competition Assessment, ¶¶ 3.125-3.135 (Jan. 2012), available at http://stakeholders.ofcom.org.uk/binaries/-consultations/award800mhz/annexes/2nd_Condoc_Annex_6.pdf.

⁶⁰ *Id.* at ¶ 3.135 (citing interview with managing director of 3 Italia’s holding company).

⁶¹ See Ofcom Statement at 36 (emphasis added). While the UK finding debunks the myth that low-frequency spectrum is essential, more recent engineering learning also indicates that in non-rural markets, which is where the spectrum crunch is most acute, there is no basis to assume that it is more valuable than higher-frequency spectrum. Even the supporters of proposals to treat low-frequency spectrum differently acknowledge that fact. See, e.g., Jon M. Peha, Updating the Spectrum Screen Comments for Public Knowledge, WT Docket Nos. 12-269 and 11-186, at 9 (filed Nov. 28, 2012) (stating that in dense urban markets, “[t]here may still be some secondary issues where frequency matters, e.g. building penetration or equipment availability, but the value of a MHz-POP of spectrum when used for this purpose should be roughly the same in all frequency bands used by this carrier.”).

“just because sub-1 GHz spectrum ... gives advantages does *not* necessarily mean holding it is a necessary requirement to be capable of being a credible national wholesaler.”⁶²

In adopting rules for the February 2013 multiband auction, Ofcom embraced its finding that low-frequency spectrum is not a competitive necessity. To promote the entry of a fourth nationwide competitor (*i.e.*, to restructure the UK market to be more similar to the U.S. market), Ofcom offered potential new entrants four alternative Minimum Portfolio Packages (MPPs), which were similar to a set-aside block for eligible bidders (*i.e.*, any bidder other than the three incumbents). This bidding restriction allowed potential entrants to choose the spectrum portfolio package for which they would be provided bidding preferences.⁶³ Ofcom’s goal was to ensure the new entrant would acquire a package of spectrum frequencies that would enable it to be a competitive presence, and it offered four packages that it considered to be competitive combinations of frequencies:

Portfolio	800 MHz	1800 MHz	2.6 GHz
1	2 x 15 MHz		
2	2 x 10 MHz		2 x 10 MHz
3	2 x 5 MHz	2 x 15 MHz	
4		2 x 15 MHz	2 x 10 MHz

Source: Ofcom, *Assessment of future mobile competition and award of 800 MHz and 2.6 GHz*, at 54 (July 24, 2012).

One of the four acceptable combinations does not include *any* low-frequency spectrum and another includes only 2x5 MHz of such spectrum. In other words, Ofcom understood that a fourth national operator would *not* necessarily need low-frequency spectrum to be a credible competitor. Numerous U.S. carriers have spectrum portfolios that meet one or more of the packages that Ofcom determined to be sufficient for a carrier to be a “credible” competitor. Many have holdings that are large multiples of the amounts set forth in the packages.

No party cites any international evidence that contradicts the evidence that low-frequency spectrum is not an “essential” input. Roetter and Pearce point to a study commissioned by the Dutch regulator,⁶⁴ but that study merely states that low-frequency spectrum “may be” essential if

⁶² Ofcom Statement at 36 (emphasis added).

⁶³ *Id.* at 70.

⁶⁴ Roetter/Pearce Paper at 17, citing *Study on comparability of frequency bands in different business models*, PA Consulting Group, (Sept. 17, 2010) (“PA Consulting Study”), available at <http://www.rijksoverheid.nl/documenten-en-publicaties/rapporten/2010/09/23/study-on-comparability-of-frequency-bands-in-different-business-models.html>.

the regulator seeks to promote the entry of a new operator that has “nationwide mass-market ambition.”⁶⁵ The study does not suggest that low-frequency spectrum is “essential.” The Dutch regulator’s goal was to stand up a new entrant that would be able to compete effectively everywhere in the country, and it suggested that low-frequency spectrum has some advantages for three specific types of operations: (i) “rural wireless broadband;” (ii) “basic low cost voice and low bandwidth data;” and (iii) “machine to machine data.”⁶⁶ Such advantages may have been relevant to the Dutch industry when the study was published in 2010, given that country’s lower levels of data usage and the fact that the spectrum would be used to build out rural areas. But there is no indication that those seeking special preferences at auction in the U.S. are pursuing low-frequency spectrum in order to deploy service in *rural* areas, or to provide “basic low cost voice,” or “machine to machine data” services.

Moreover, the *results* of the Dutch auction debunk any speculation that operators needed to be guaranteed access to low-frequency spectrum in order to compete. As discussed above, the Dutch operator ZUM – like various nationwide operators in other European countries – decided to forego the opportunity to acquire low-frequency spectrum during the auction. Although ZUM did not hold any low-frequency spectrum prior to the auction, and although it could have acquired such spectrum at subsidized prices, it decided to compete (on an equal playing field) with larger incumbents to acquire *higher*-frequency spectrum. That further adds to the evidence that there is no basis for assertions that low-frequency spectrum is a competitive necessity.

IV. AUCTION RESTRICTIONS HAVE CONSISTENTLY UNDERMINED THE INTERESTS OF CONSUMERS, INNOVATORS AND TAXPAYERS.

The U.S. wireless industry is one of the least concentrated wireless markets in the world.⁶⁷ Compared to virtually every other corner of the world, U.S. consumers receive superior value on wireless services and are the beneficiaries of extensive deployment of high-speed

⁶⁵ PA Consulting Study at 2.

⁶⁶ *Id.* at 9. The German regulator has similarly stated that the 800 MHz band is “especially suitable for covering *rural* areas.” German Auction Rules at 56 (emphasis added).

⁶⁷ Comments of CTIA – The Wireless Association®, WT Docket No. 13-135, at 67-68; 71-72 (filed June 17, 2013) (“CTIA Competition Comments”).

mobile technologies.⁶⁸ Indeed, the FCC recently observed that LTE deployment by a variety of competing U.S. wireless operators has been transformative. Last year the FCC stated:

On the mobile front, change is accelerating. Providers have continued to expand their coverage, but are also deploying new, faster, and more spectrally-efficient mobile network technologies, most notably Long Term Evolution (LTE), which offers advertised download speeds as high as 5-12 Mbps. In the summer of 2010, there was no LTE deployment in the United States. Just 18 months later, in January 2012, three mobile wireless providers had launched LTE networks, and best available estimates are that these LTE networks (combined) covered 211 million people.⁶⁹

The FCC and Congress can take credit for policies, including spectrum auction policies, that have generally supported those extraordinary investment levels and the associated consumer benefits. For the better part of the past two decades, Congress and the FCC have consistently supported using auctions to ensure that spectrum is assigned to those wireless operators that value it most. That policy is well grounded in economic theory and experience showing that competition and consumers benefit when spectrum is put to its highest and best use by the companies that need it to serve their customers. After its disastrous experiment with bidding restrictions in the 1994 PCS auction, which caused billions of dollars in consumer harm by significantly delaying the deployment of wireless services,⁷⁰ the FCC has generally declined to impose eligibility limits or other policies that manipulate the outcomes of spectrum auctions. Consumers (and the U.S. Treasury) have benefitted from that longstanding auction policy.⁷¹

Foreign regulators employing auction restrictions have typically sought to transform their markets into ones that more closely resemble the more competitive and dynamic U.S. wireless

⁶⁸ *Id.* at 69-70, 73.

⁶⁹ *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 11-121, Eighth Broadband Progress Report, 27 FCC Rcd 10342, ¶ 6 (2012) (internal citations omitted).

⁷⁰ *See* Earle/Sosa Paper at 7-10.

⁷¹ “Since 1994, the FCC has held more than 80 auctions, issued more than 36,000 licenses, and raised more than \$50 billion for the United States Treasury.” Simon Loertscher, Leslie M. Marx, and Tom Wilkening, *A Long Way Coming: Designing Centralized Markets with Privately Informed Buyers and Sellers*, at 24 (July 5, 2013), available at <https://faculty.fuqua.duke.edu/~marx/bio/papers/incentive-auction.pdf>.

market, but their goals have not been realized. As reported in a recent paper analyzing the auction restrictions imposed by Canadian and European regulators:

Regardless of the merits of the policy goals that were intended to be achieved with discriminatory auction participation rules, these policy tools have not been effective. Our research clearly demonstrates that these rules have failed to create the desired outcomes of stimulating sustainable market entry or otherwise altering the market structure. Instead, the restrictions have needlessly delayed spectrum deployments, subsidized certain bidders, and diminished auction revenues.⁷²

These countries that have imposed auction restrictions – while held out as models by proponents of auction restrictions in the United States – are characterized by comparatively lower levels of competition and investment that have led to poor consumer outcomes, including higher prices, lower quality, and much lower LTE penetration rates.⁷³ For example, as of 4Q 2012, only three European countries had more than 1% of wireless connections using LTE – and even Sweden, the top European country with 4.7% LTE connections, was still far behind the United States.⁷⁴ Supporters of auction restrictions in the United States provide no explanation as to why the FCC should replace its existing policy with an approach that has consistently proven to be misguided.

CONCLUSION

The international evidence linking non-inclusive auction rules and restrictions with poor results – both in terms of competition and revenue – militates against imposing them in the United States. It also shows that there is no basis for discriminating in favor of operators that do not already hold low-frequency spectrum. The FCC therefore should continue its successful historical policy of requiring inclusive auctions allowing all competitors to bid for spectrum on a level playing field. That policy both ensures that spectrum is deployed effectively and efficiently for the benefit of consumers and American mobile innovation and makes certain that auction revenues fairly compensate the U.S. taxpayer for this scarce resource.

⁷² Earle/Sosa Paper at ii.

⁷³ See, e.g., CTIA Competition Comments at 67-68; 71-72.

⁷⁴ *Id.* at 73.